

NEW ELASTIC APPARATUS FOR
HERNIA.

ON THE ADVANTAGES OF THE

NEW ELASTIC BELT

AND

AIR PAD

FOR

INGUINAL, CRURAL, AND UMBILICAL
HERNIA.

INVENTED BY

MR. PHILIP BOURJEAURD,

Late Surgeon in the Royal Navy,

No. 11, Davies Street, Berkeley Square, London,

(OPPOSITE MIVART'S HOTEL).

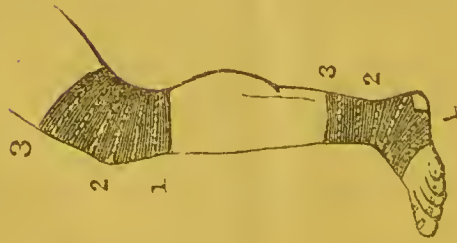
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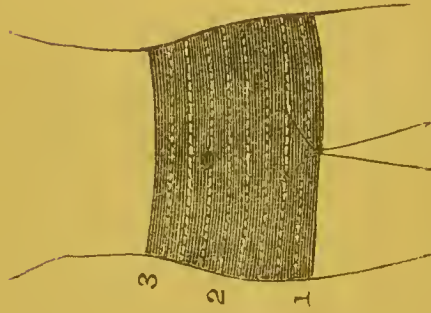
1853.

CAUTION.

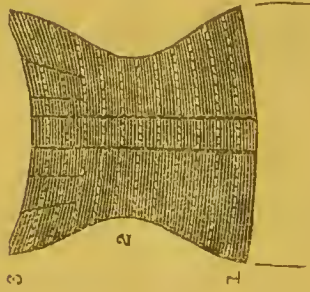
Knee Cap & Ankle Piece.



Abdominal Supporter.



Spinal Supporter.



Stocking & Thigh Piece.



Mr. BOURJEAUD submits the above Engravings to the Profession, chiefly in order to caution very earnestly against the thefts which have lately been committed respecting his designs, apparatuses, and very words. The accompanying Wood-cuts have been widely circulated by unprincipled Tradesmen; and Mr. Bourjeaud entreats the Medical Profession to accept none of the appliances put forward under the name of Spiral (of which mode of compression he is the sole inventor) except the articles come from his own Establishment, No. 11, Davies Street, Berkeley Square, (opposite Mivart's Hotel.)

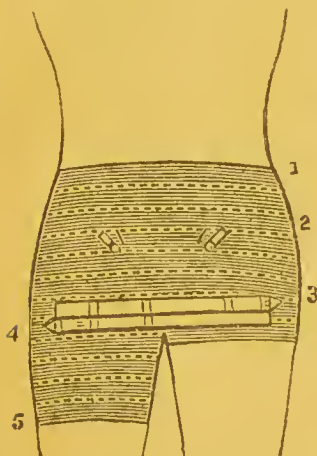
THE NEW BELT AND AIR PAD FOR HERNIA.

"Prevention is better than cure."

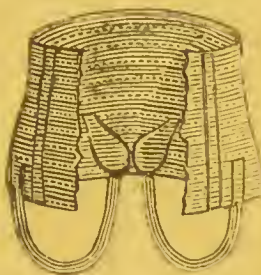
"A great mistake made by Surgeons is to give up the treatment of ordinary hernia to Bandage Makers, and to step in only when strangulation has occurred."—MALGAIGNE.

Inguinal or crural hernia apparatus:

No. 1.

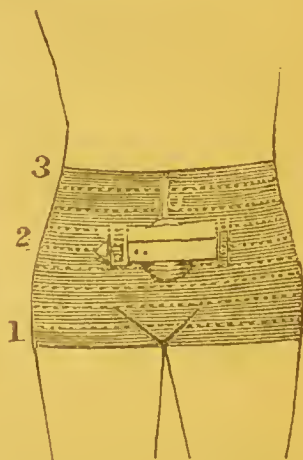


Internal view of the Hernia Belt
No. 2.



Umbilical hernia apparatus.

No. 3.



It is with no common satisfaction that I beg to introduce to the Medical Profession at large my new Elastic Belt and Air Pad for inguinal, crural, and umbilical hernia. The apparatus has now been extensively tried, and this invention of mine has received at the hands of some of our most eminent Surgeons a very flattering approval. Such patronage could not have been obtained, if the excellence of the new Hernia Belt had not been found perfectly clear by these competent judges; and it is very gratifying to me, after the time and labour which I have expended in the investigation of the subject, to find myself supported by the *elite* of the profession.

It may truly be said, that a new era has now begun regarding the mechanical means used for keeping within the abdomen herniated portions of the intestinal canal or omentum; for my Belt and Air Pad answer the purpose *tute et jocunde*, the discomfort and inefficiency of the trusses hitherto in use, being now distinctly proved. The old contrivances will therefore be gradually abandoned; gentle support will replace coarse pressure, comfort will succeed to pain, complete retention of the hernia will replace the frequent slipping of the tumor by the side of the metallic pad, and cases of strangulation will only occur from neglect of procuring or properly wearing my new apparatus.

The wonder, when a new and well adapted invention makes its appearance, and at once takes a very high standing, is, that it should not have been thought of before; and it will appear by the sequel, when I come to describe my apparatus, that the latter, in theory and practice, is extremely simple, and based upon universally adopted principles of anatomy, physiology and pathology. The complete revolution which my Elastic Belt for hernia will cause in this department of Surgery, is of a very important kind, and this change, far from being destructive as revolutions generally are, will be conducive to a great deal of comfort, and be the means of

saving hundreds of patients from pain, and the fearful casualties consequent upon strangulation.

Although Surgeons could by no means have been satisfied with the steel trusses, the force of habit has nevertheless prevailed for a long time; and these metallic contrivances have continued to be worn, although it was in many instances apparent, that the cases of strangulation requiring operation, were to be traced to this inefficiency. These untoward consequences will now but seldom arise, and I am not a little proud of thus contributing to the welfare and security of patients, and so efficaciously assisting Surgeons in the arduous duties they have to perform.

That steel springs should have been so long in use is really astonishing; for in looking at the nature of hernia, and at the structure of the abdominal walls, it will at once become clear that the steel trusses must, though ever so much improved, do more or less harm. This will become palpable when we put in juxta position the yielding nature of the parietes of the abdomen; the delicacy and proneness to inflammation of the peritonæum; the liability of the bowels to be distended with flatus; with the ruthless pressure exerted by the steel spring.

This view of the evil effects of the steel truss is confined to the side on which the instrument is applied; but it should not be forgotten, that the greatest mischief may be done in the opposite groin, by the partial pressure effected on one side only; but to this circumstance I shall presently allude.

That the steel trusses must really be hurtful, and very imperfectly keep up hernia, are facts which naturally spring from the nature of these protrusions, and from the aim held in view, when a truss is applied. We may suppose, that in ordinary cases there is a constant tendency in the bowel or omentum, (when hernia has once taken place) of finding their way into the inguinal or crural canal or to the umbilical cicatrix. There is in fact, in cases of reducible hernia, a constant pressure against the ring, which latter, by the presence of the peritonæal sac in the canal, is ever ready to yield to intestine or omentum. Now the means of preventing protrusion should certainly not consist of strong pressure, *with a globular body, over a small area*, but of a diffused compression which should support the *whole contents* of the abdomen, so as to diminish the weight, and consequently the pressure of the intestinal mass against the abdominal walls.

There can hardly be any doubt, but that this is the right view of the case, and I must be allowed to say that the trusses which are commonly worn, are far from accomplishing the desirable object to which I have just alluded. What is in general the plan upon which these trusses are constructed? A semi-circle made of more or less unyielding steel spring, with a pad at one extremity, which rests against the spine, and another in front, which by displacing the intestines and pressing backwards, almost meets the posterior one against the spine. I have seen cases of children, with whom the posterior pad pressed so hard upon the spine that the little patient could hardly walk, and threw himself from side to side in a very awkward manner during progression. Such patients

have resumed free and graceful movements, by wearing my hernia belt. In supposing now that the front pad be exactly applied to the ring, and never slip from its place, (a state of things which seldom obtains) let us examine its effects upon the walls of the abdomen, and the viscera contained in that cavity.

And, first, as to the walls. It will be conceded that the generality of pads are by far too hard, in comparison with the skin and cellular tissue upon which they press; and this disproportion is frequently rendered manifest by the ecchymosed, congested, and sometimes inflamed state of the skin, subjected to the pressure. But if undue compression with a hard body injure the skin, what must we think of the effects produced on the peritonæum, bowels, or omentum. Of course a great portion of the intestines lying in the vicinity of the ring, are by the pressure of the pad driven inward, but the mass returns upon the pad, and forms round the latter a thick and congested circle of intestines and omentum.

What are the dangers of such ill-directed pressure? They are indeed but too obvious. Pain, uneasiness, and a sense of weight towards the hypogastrium, which symptoms are greatly increased after meals, and whenever there is the slightest tendency to flatulence. Besides these evils, we also observe that the course of the alimentary mass along the intestinal canal becomes slow, tedious, and painful in the vicinity, and even at a considerable distance of the compressing pad, since the muscular coat of the constricted bowels is constantly in a state of sub-acute inflammation, and the nervous energy of the part almost annihilated. Swelling of the leg takes place from imperfect return of venous blood, as veins of a considerable size are not unfrequently compressed by the pad against the ramus of the pubis or ischium. The glands of the groin suffer materially in such cases, for the lymphatic vessels coursing from the inguinal region towards the glands lying by the side of the spine, are but too often injuriously pressed upon by the truss, the action of which is made powerful and unyielding by means of the steel spring. Varicocoele and varicose veins do not unfrequently follow upon the wearing of the old truss, and I need not remind Surgeons how often patients, applying for the relief of these two affections, suffer at the same time from hernia, for which they are inconveniencing themselves with a steel spring.

It is no wonder, then, that with patients so situated, hernia should often take place on the opposite side, some time after the truss has been worn; for the pressure is so continuous, that the viscera are forced either posteriorly or laterally; and persons who provided themselves with trusses for keeping up an intestinal protrusion on one side, sometimes find, after having endured all kinds of pain and annoyance, that a similar displacement is occurring on the opposite groin.

Struck by these numerous imperfections, grieved as a Surgeon, at the suffering which so many patients had no means of escaping, I began to think of contriving an apparatus which should be free from all these blemishes. I had not far to go, however, to find the necessary appliances, because I have used for some time abdominal elastic belts, which give excellent support to the viscera, both in ordinary cases and when much obesity or pregnancy are present. But it was not only necessary to

give proper support to the whole abdomen, but also to press directly upon the rings, in a gentle, equable and painless manner, so as to prevent protrusion, and avoid the evils which I pointed out a few moments ago. The elastic pads filled with air, which I had been employing for some time in various ways, seemed to be particularly fit to answer the object in view, principally by the facility of admitting the air, and allowing of its escape.

The task was thus almost accomplished, and the great point now was to arrange and modify the whole apparatus in such a manner, that it should be put on with ease, compress the parts sufficiently without giving pain, and be worn with comfort. An elastic thigh piece, and yielding bands passing over the shoulders, seemed to me extremely likely to aid in the attainment of this end, and I have now the satisfaction of presenting to the profession an apparatus, which for efficacy and comfort cannot easily be surpassed.

The new Elastic Belt and Air Pad for Hernia thus comes to offer the following features:—It is composed of a belt made of elastic strips, about one inch in breadth, (See Woodcut No. 1, inguinal hernia, external view) which by being sewn together in a peculiar manner, effect an equable compression around the abdomen, from the ensiform cartilage to the pubis. It will be perceived, that I am here carrying out the principle of spiral compression, which presides over all my apparatuses, and which has gained so much favour and patronage from the profession. The strength of the strips varies according to the subjects, and is made of different power, according to the wish of the Surgeon. The abdomen is thus encased by a broad and yielding belt, and the whole of the viscera properly and safely supported, as the belt acts exactly like an additional fascia. But to render the support still more efficacious, I took advantage of the unyielding nature of the spinal column, and fixed thin whalebone to the posterior portion of the belt, so as to gain the assistance of a fulcrum, which renders the compressing force more efficacious without distressing the anterior part of the abdomen.

On the *internal* and front part of the belt, (See Wood Cut, No. 2, inguinal hernia, internal view) two air pads are attached exactly on the spot where the belt comes in contact with the inguinal rings, and these elastic pads, covered with chamois leather, and filled with air, exercise a gentle compression upon the rings, which compression may be increased or diminished in changing, by means of a small tube and stopcock, the quantity of air contained in the pads. The latter were originally made of a pyriform shape, and answered the purpose extremely well; but I found that when patients sat down, the pressure was a little relaxed. To remedy this trifling difference, I added to the pads, at their tapering extremity, a tube which I fixed to the lower and posterior margin of the belt; this formed in some degree a long stalk to the pear-shaped pad. As this stalk is, as well as the pad, filled with air, and courses round the perineum, it contributes to the firmness and steadiness of the whole apparatus; and when the wearer sits down, the weight of the body drives some of the air, contained in the stalk, into the pad in front, and sufficiently augments the size of the latter, so as slightly to increase the pressure in the sitting posture.

The thigh piece, made on the spiral principle, and of the same elastic material as the belt, is intended to counteract the tendency of the latter to slip upwards, and becomes of great use especially in crural hernia, for fix-

ing the pad exactly over the femoral ring. (See Wood Cut, No. 1, from 4 to 5.) I need not say how difficult it is with the ordinary trusses, to effect a proper compression over the crural ring; this has always been found a tedious task; I am extremely happy to state, that I have been very successful in femoral cases, and I would especially refer to two of these, treated at Guy's and St. Bartholomew's Hospitals, in which I met with the most complete success. (See *Lancet*, January 10th, 1852, p. 43, and March 13th, 1852, p. 267.) With patients who present some obesity or who are much engaged in manual labour, elastic braces may be used, and the thigh piece is then dispensed with.

I would now direct attention to a feature of great importance: namely, the manner in which my new Belt and Air Pad for Hernia is put on. In regulating this, I have kept in view a principle which in contrivances of this kind should never be forgotten. I allude to the advantage of supporting the abdominal viscera from below upwards, by which means the tendency to protrusion is considerably lessened. Hence, I construct my Hernia Belt in such a way that it may with the greatest ease be drawn up over the feet, and without any effort brought gradually upwards; thus raising and supporting the contents of the abdomen as it is being drawn over the pubis, towards the false ribs, and the cusiform cartilage. This is a point upon which I cannot insist too much, for I may say, that this manner of putting on the belt has a very large share in the benefit conferred upon patients by my new Hernia Apparatus. Nothing is in fact so hurtful as to allow the viscera to be compressed from above downwards, for protrusions will in this way be favoured and excited, instead of being avoided and controlled. I am in the habit of advising an air pad to be worn on each groin, for this precaution, added to the generally diffused compressing force of the belt, will prevent the possibility of any protrusion on the side where no hernia is as yet existing.

It is really astonishing to notice with how much comfort my Hernia Belt is worn by patients, how easily they can indulge in every kind of exercise, and how effectually it prevents the hernia from coming down. I have received such kind encouragements from the profession, and such high encomiums have been passed on my new apparatus, both by patients and their medical attendants, that I am already fully rewarded for the time and trouble which I have bestowed on this useful and elegant contrivance.

The steel springs and common trusses cannot for one moment be compared with my Hernia Belt; for with the latter we have no deep and painful indentation into the abdomen; no chafing of skin, no continual shifting and displacement on the slightest movement, no large bulging of intestines, by the side of the pad, no œdema of the leg, no varicocele or varicose veins, no irritated inguinal glands, &c., &c. But the pressure is, on the contrary, diffused all over the abdomen, the viscera are well supported, the rings are steadied and compressed, without being unduly stopped up, and the pressure is regulated at will, both by the ingress and egress of air, and likewise by webbed straps which pass over the belt and pads, which straps may be loosened, especially after meals. No unsightly protruberance is noticed under the clothes, as is too often the case with male patients, who make use of the old truss, and the whole is worn with safety and comfort.

It will certainly strike every practitioner, who does me the honour of reading this rapid sketch, that my new Hernia Belt is likely to do a vast deal of good, and to confer upon patients suffering from rupture the greatest benefits. I am perhaps not indulging in too sanguine hopes, when I look upon this invention as likely to produce changes of no mean kind in Surgical practice; for it is evident that all the imperfections of the hard and unyielding trusses being removed, many of the accidents to which ruptured persons are liable, will now no longer occur, and strangulation will certainly become more and more rare.

I should not omit to state, that I have applied the same principle and apparatus to umbilical hernia; the pad is here so placed as to effect a graduated and gentle pressure on the umbilicus, (see Wood Cut No. 3,) and by being accurately calculated upon the size of the opening, the pad becomes adherent to the umbilical aperture, without compressing it too much, and thus effectually prevents any intestinal protrusion. I have succeeded in many cases of umbilical hernia in children, even of very tender age, not only in keeping the bowel within the abdomen, but also in effecting a radical cure of the affection. I have even been so happy as to meet with a similar result in an adult suffering from umbilical hernia, and I indulge the hope that when my apparatus is generally worn, permanent obliteration of the rings will be very frequently obtained. See an account of two cases of umbilical hernia, treated at the London Hospital, (*Lancet*, July 12th, 1851, p. 33, and February 12th, 1853, p. 153.)

I have now had considerable experience in the adaptation of this new apparatus for cases of inguinal, crural and umbilical, hernia, and I trust that professional men will continue to lend me their support, and give the new Hernia Belt a trial whenever an opportunity presents; they will find that the benefits conferred upon the patients are of so important a kind, that the latter will not fail to be extremely grateful and pleased at being rescued from the pain and inconvenience produced by the old truss, and by being transferred into a state of ease and comfort, to which they had long been strangers.

I shall be very happy to shew the new apparatus to such members of the profession as will do me the favour of calling, and gladly answer by letter any inquiries which may be made on the subject. I have been honoured, as I stated above, by the approbation of the most eminent Physicians and Surgeons of this metropolis, and such kind patronage is a great incentive to persevere, and make use of the experience I have gained, so as to contrive appliances fulfilling the indications which may present themselves in Surgical practice.

My original designs and apparatuses, are daily imitated and copied, and offered to the profession, with the same drawings and almost the identical words I am in the habit of using. Though these attempts are very clumsy, they might here and there lead to errors, and leave bad impressions upon the minds of Surgeons; I think it therefore useful to caution professional men against this unprincipled pilfering, and hope that no confidence may be given to elastic appliances which do not directly emanate from my own establishment.

11, Davies Street, Berkeley Square.

(Opposite Mivart's Hotel.)

May, 1853.

